

What is claimed is:

1. A system for mounting capable of high-precision alignment of a first element relative to a second element, the system comprising:

at least one post having a first end and a second end, wherein the first end has a first end diameter, and wherein the second end has a second end diameter;

a first element having the first end affixed thereto; and

a second element having at least one hole, wherein the hole has a hole diameter which is greater than the second end diameter such that the second end is positioned within the hole, wherein a gap is provided within the hole, wherein the gap is between the second end and the second element, wherein a material is provided within the gap that serves to affix the second end to the second element.

2. The system of claim 1, wherein the material is capable of being in a deformable state and a solid state, wherein the deformable state allows for movement of the second end relative to the second element, and wherein the solid state allows for rigid support of the second end.

3. The system of claim 2, wherein the material is of the curable type to thereby form the solid state from the deformable state when cured.

4. The system of claim 2, wherein the material is capable of being transformed from the solid state to the deformable state by application of heat.

5. The system of claim 2, wherein the material is an adhesive.

6. The system of claim 5, wherein the adhesive is glue.

7. The system of claim 1, wherein the second element includes an access hole that allows for insertion of the material into the gap.
8. The system of claim 1, further comprising at least one bolt, wherein the post is hollow, wherein the first element includes a counter-bore having a threaded hole therewithin, wherein the first end is affixed to the counter-bore via the bolt threadably secured to the threaded hole through the hollow post.
9. The system of claim 1, wherein the post is hollow.
10. The system of claim 1, wherein the post is hollow and surrounds an optics path.
11. The system of claim 1, further comprising a dam positioned within the gap and surrounding the second end, wherein the dam extends from the second end to the second element, and wherein the material is confined to one side of the dam.
12. The system of claim 11, wherein the dam is a compliant O-ring.
13. The system of claim 1, wherein the hole is substantially cylindrical.
14. The system of claim 1, wherein the first element is an optics block.
15. The system of claim 14, wherein the second element is an optical detector mounting structure.
16. The system of claim 1, wherein the first element is an optical detector mounting structure.

17. The system of claim 16, wherein the second element is an optics block.
18. The system of claim 1, wherein the first element is an image source.
19. The system of claim 18, wherein the second element is an optics block.
20. The system of claim 14, wherein the second element is an image source.
21. The system of claim 14, wherein the second element is another optics block.
22. A system for mounting capable of high-precision alignment of a first element relative to a second element, the system comprising:
  - a first hollow post having a first end and a second end, wherein the first end has a first end diameter, and wherein the second end has a second end diameter;
  - a second hollow post having a first end and a second end, wherein the first end has a first end diameter, and wherein the second end has a second end diameter;
  - a first element having the first end of the first hollow post affixed thereto; and
  - a second element having the first end of the second hollow post affixed thereto, wherein the second end diameter of the first hollow post is greater than the second end diameter of the second hollow post such that the second hollow post is positioned at least partly within the first hollow post, wherein a gap is provided between the first hollow post and the second hollow post, wherein a material is provided within the gap that serves to affix the first hollow post to the second hollow post.
23. The system of claim 22, wherein the material is capable of being in a deformable state and a solid state, wherein the deformable state allows for movement of the first hollow post

relative to the second hollow post, and wherein the solid state allows for rigid support of the first hollow post and the second hollow post.

24. The system of claim 23, wherein the material is of the curable type to thereby form the solid state from the deformable state when cured.

25. The system of claim 23, wherein the material is capable of being transformed from the solid state to the deformable state by application of heat.

26. The system of claim 23, wherein the material is an adhesive.

27. The system of claim 26, wherein the adhesive is glue.

28. The system of claim 22, wherein the first and second hollow posts surround an optics path.

29. The system of claim 22, wherein the first element is an optics block.

30. The system of claim 29, wherein the second element is an optical detector mounting structure.

31. The system of claim 22, wherein the first element is an optical detector mounting structure.

32. The system of claim 31, wherein the second element is an optics block.

33. The system of claim 22, wherein the first element is an image source.

34. The system of claim 33, wherein the second element is an optics block.
35. The system of claim 29, wherein the second element is an image source.
36. The system of claim 29, wherein the second element is another optics block.
37. A system for mounting capable of high-precision alignment of a first element relative to a second element, the system comprising:
- at least one post having a first end and a second end, wherein the first end has a first end diameter, wherein the second end is at least partly spherical having a second end diameter, wherein the post has a shaft between the first end and the second end, and wherein the shaft has a shaft diameter which is less than the second end diameter;
  - a first element having the first end affixed thereto; and
  - a second element having at least one hole, wherein the hole has a hole diameter which is greater than the shaft diameter, wherein the second end is positioned within the hole, and wherein the second end is clamped within the hole with a clamping element.
38. The system of claim 37, wherein the clamping element is a flexure clamp provided in the second element.
39. The system of claim 38, wherein the flexure clamp includes a clamping bolt which is capable of allowing movement within the hole of the second end relative to the second element when the clamping bolt is loosened, and wherein the clamping bolt is further capable of rigid support within the hole of the second end when the clamping bolt is tightened.
40. The system of claim 37, wherein the hole is substantially cylindrical.

41. The system of claim 37, wherein an intermediary sleeve is positioned in the hole between the second end and the second element.
42. The system of claim 37, wherein the first end is substantially identical to the second end and is clamped within a corresponding hole in the first element.
43. The system of claim 37, wherein the first element is an optics block.
44. The system of claim 43, wherein the second element is an optical detector mounting structure.
45. The system of claim 37, wherein the first element is an optical detector mounting structure.
46. The system of claim 45, wherein the second element is an optics block.
47. The system of claim 37, wherein the first element is an image source.
48. The system of claim 47, wherein the second element is an optics block.
49. The system of claim 43, wherein the second element is an image source.
50. The system of claim 43, wherein the second element is another optics block.